

## CONVERTING SOLID WASTE FROM ABATTOIRS INTO HYDROCHAR

**Project Report Reference: 2016-1012**

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### **Project Description**

Currently, there are not many alternatives for a beneficial use of paunch waste. The use of paunch waste is often limited by its high water content and the cost associated to drying. This project used hydrothermal carbonization to obtain a product (hydrochar) which can be used as a valuable soil amendment or combusted as a source of energy.

### **Project Content**

Paunch waste, DAF sludge and a compost prepared from paunch waste and manure was gathered from a visit to an abattoir. A soil was sampled. Six hydrochars were produced, two from each feedstock. The physical, chemical and thermal properties of the hydrochars were determined. A pot experiment was carried out to test the agronomic performance of the hydrochars.

### **Project Outcome**

Our project has shown for the first time that hydrothermal carbonization is able to produce a product with good characteristics for its use as a soil amendment from paunch waste. The resulting hydrochars produced beneficial effects on soil quality, as measured through biological properties. Char yield was higher when a composted mixture of DAF sludge and paunch waste was used for hydrothermal carbonization. An increase in soil biological properties was also achieved. This resulted in an increase in improved crop yield. The project demonstrated that a choice of an appropriate feedstock is more important than the conditions used for hydrothermal carbonization when considering the value and yield of the final product.

### **Benefit for Industry**

Our project represents a paradigm change in the management of paunch waste; where efforts to date focused on drying the product in order to be used as fuel for co-combustion or for pyrolysis. Our project has shown that up to 20 % increase in crop yield can be achieved by using hydrochars prepared from paunch waste or from composted paunch waste and DAF sludge. This represents a product with a superior value to the compost that is currently produced in abattoirs.

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